

## Propeller effect in action in the ultraluminous accreting magnetar M82 X-2

Tsygankov S., Mushtukov A., Suleimanov V., Poutanen J.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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### Abstract

© 2016 The Authors Published by Oxford University Press on behalf of the Royal Astronomical Society. We present here the first convincing observational manifestation of a Magnetar-Like magnetic field in an accreting neutron star in binary System-The first pulsating ultraluminous X-Ray source X-2 in the galaxy M82. Using the Chandra X-Ray observatory data, we show that the source exhibit the bimodal distribution of the luminosity with Twowell-Defined peaks separated by a factor of 40. This behaviour can be interpreted as the action of the 'propeller regime' of accretion. The onset of the propeller in a 1.37 s pulsar at luminosity of  $\sim 1040 \text{ erg s}^{-1}$  implies the dipole component of the neutron star magnetic field of  $\sim 1014 \text{ G}$ .

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### Keywords

Accretion, Accretion Discs-Magnetic Fields-Stars, Binaries, Individual, M82 X-2-Stars, Magnetars-X-Rays